

duration. It was also shown that *S. duttoni* may pass *in utero* from mother to foetus, and extensive studies were carried out to determine the rôle played by the spleen in infection by spirochaetes. Attempts were made to transmit spirochaetes by the bites of *Cimex lectularius*, but without success. Subsequently (*Annals*, Vol. I, p. 435) Breinl studied the morphology and life history of *S. duttoni*, while Markham Carter (*ibid.*, p. 15) described the multiplication and important changes in form of *S. duttoni* in eggs laid by infected ticks. Still later (*Annals*, Vol. V, p. 479), Fantham studied the life cycle of spirochaetes, amongst those considered being *S. duttoni*, *S. recurrentis* and *S. marchouxi*. Subsequently (*Annals*, Vol. VIII, p. 471) he investigated the granule phase of the parasite, a detailed study being given, while serving with the Expedition to Khartoum, to *S. bronchialis*, in which it was found that the granules formed by the spirochaete were the cross infective stages of the organism (*Annals*, Vol. IX, p. 391).

In 1917, while making microscopical examinations of stained smears from the stools of five hundred and fifty-four patients, admitted to hospital for dysentery, Carter found that 56·5 per cent. were infected with *Spirochaeta eurygyrata*. A control investigation on one hundred cases free from intestinal disorders showed 41 per cent. to be infected (*Annals*, Vol. X, p. 391). Repeating this investigation amongst a normal population, Macfie and Carter (*Annals*, Vol. XI, p. 75) examined eighty-two hospital patients suffering from some surgical condition, and twenty-three normal healthy men. None of the cases had ever resided in the tropics. Of the hospital patients 56·2 per cent., and of the healthy men 43·8 per cent., harboured *S. eurygyrata*. A second species of spirochaete was discovered in the intestine of one case, which, owing to its larger size and certain morphological peculiarities, was considered to be a new species, and named by them *Spirochaeta intestinalis*. Macfie and Yorke examined the morphology of the spirochaetes responsible for European, African and Indian relapsing fevers (*Annals*, Vol. XI, p. 81), and reached the conclusion that there is at present no means of distinguishing these parasites morphologically.

### AMOEBIASIS

Research into the amoebae parasitic in the human intestine was undertaken by Fantham, and a study commenced of the life history of *E. coli* as seen in cultures (*Annals*, Vol. V, p. 111).

Carter, Mackinnon, Matthews and Smith conducted extensive researches into the protozoal findings in cases of amoebic dysentery. In their first report (*Annals*, Vol. X, p. 411) they recorded the results of four thousand three hundred and thirty-four examinations of nine hundred and ten patients suffering from this condition. Protozoal infections were discovered in 44·2 per cent.; *E. histolytica* was found in 10·3 per cent. of the cases; *E. coli* in 25·4 per cent.; *G. intestinalis* in 18·6 per cent.; *T. intestinalis* in 1·2 per cent.; and *C. meñili* in 2·7 per cent. Their second report (*Annals*, Vol. XI, p. 27) recorded similar examinations of one thousand seven hundred and thirteen cases of dysentery. Stress was laid upon the necessity for repeated examinations of each patient, as cases found negative the first and second times may prove on further examination to be *E. histolytica* carriers. The subject of 'negative periods' (absence of vegetative forms and cysts) in infected cases was also dealt with. A third report of this investigation appeared in *Annals*, Vol. XIII, p. 83. Yorke and the above-mentioned observers examined for intestinal protozoa three hundred and forty-four persons who had never been out of England (*Annals*, Vol. XI, p. 87). Of this number, two hundred and six were healthy young men of about 18 years of age who had recently entered the Army. A single examination of each of these cases revealed the interesting fact that 3·9 per cent. were infected with *E. histolytica*. In an address to the British Medical Association (*B.M.J.*, April 12th, 1919), Yorke emphasized the importance of discovering whether the infection in this country is recent or otherwise. He was inclined to believe that it was not recent because (1) carriers must have frequently entered this country before the war; (2) all the necessary factors for the spread of the infection are to be found in this country; (3) there are authentic records of cases of amoebic dysentery and liver abscess before 1914.

Stephens and Mackinnon treated eighty-one cases infected with *E. histolytica* with 'alcresta ipecac,' an adsorption compound of



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